



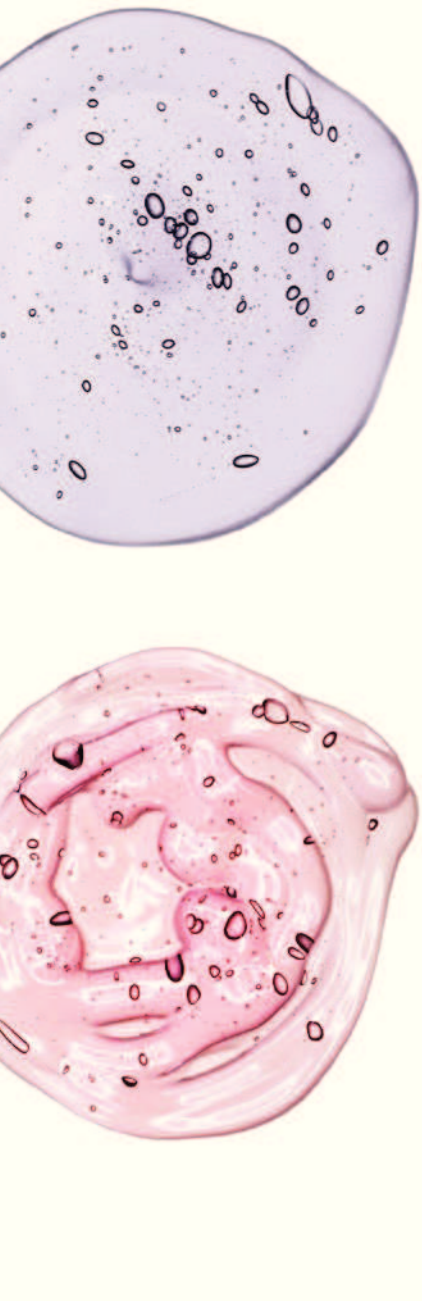
# NATURAL WATER-BASED THICKENERS

**Ingredients** | Thickening natural personal care products is a challenge. This selection, however, shows that there is a broad choice of water-based thickeners to be used as an alternative to synthetic polymers and sulphate-based surfactants.

Pure natural and nearly natural cosmetics managed to see growth in the German Market in 2018, whereas the development of traditional cosmetics was characterised by stagnation. Only facial masks managed to drive growth in facial care.

The success of natural cosmetics does not mean to say, however, that formulating these products is easy. Obtaining a thickening effect in water-based natural products is a challenge. The need to formulate without synthetic polymers or sulphate-based surfactants leads to the search for

new, high-performance, natural rheology agents for natural cosmetics. Thickeners can have a significant impact on product stability, efficacy, suspension properties and skin feel. Tolerance of electrolytes, high/low pH values and ethanol need to be considered, as well as the transpar-



ency of gels and rinse-off products, the use level, the workability (hot or cold), and the rheological profile. Shear-thinning flow characteristics and thixotropy are favourable.

Industry expert George Deckner stated in 2018: "In general, the best water-based thickener to use in a formulation is the most efficient one, since levels greater than 0.5 % in leave-on formulations can result in poor skin feel"\*. He recommended using the best-in-class products and to combine thickeners with different functionalities, thus combining soluble and swellable polymers.

About 877 thickeners and stabilisers with a natural origin are listed in the ingredients database of **In-Cosmetics 2019**. Many of these are oil-binding additives, co-emulsifiers or secondary surfactants. With our selection of commercial ingredients, we are featuring different groups of water-based thickeners.

### Gums are enjoying a renaissance

**BASF's Rheocare XGN** is a new vegan, non-GMO xanthan gum stabiliser, thickener and hair styling polymer for emulsions and surfactant-based products including oral care. This **Cosmos**-compliant polymer is based on 100% renewable feedstock. It combines suspending and stabilising properties with high yield value and creates elastic properties in formulations. Formulations in water are crystal-clear. Its electrolyte and ethanol tolerance is high.

**Jungbunzlauer's XG FNCS-PC Xanthan Gum** for suspensions, foams and emulsions creates a highly pseudo-plastic flow which allows easy pumping and spraying. It is both **Ecocert**- and **Cosmos**-approved.

**CP Kelcos's Kelcogel CG-HA** is a gellan gum which is designed for hair, body, skin, and sun care products. It forms elastic gels, creates films, and stabilises formulations.

The company's **Keltrol CG-SFT** is a xanthan gum powder designed for personal care products. This ingredient is stable over a wide pH range and creates transparent solutions with a smooth flow.

**Nouryon's Amaze XT** is a dehydroxanthan gum which easily disperses into water and can also be used as a styling polymer.

### Cellulosics as a versatile stabiliser

**Avicel PC 611** microcrystalline cellulose by **FMC Biopolymer (FMC)** is used as a stabiliser, suspending agent, thickener, foam booster and rheology modifier.

### Starches as multi-functional additives

**Formal 21 T** by **Ingredion** is a multifunctional biopolymer based on tapioca starch. It is a bulking agent, moisture absorber or active carrier and can be used in nearly any personal care application.

### Alginates: thickening and moisture-retaining properties

**FMC Biopolymer's Kelset** is an alginate recommended as a consistency regulator that is capable of maintaining its viscosity over a wide temperature range with a pleasant skin feel.

**Alginic Acid** by **Indfrag** is a versatile thickener with smoothening, hydrating and stabilising properties. It can be used for both shampoos and skin care products.

**Flavikafine SF-D/W** is a hydrophilic calcium alginate by **Nisshinbo Chemical**. It provides a non-sticky, non-swelling gel.

### Carrageenans provide many different textures

**Gelcarin GP 379 NF** is an iota carrageenan thickener by **FMC BioPolymer**. It forms an elastic and thixotropic gel.

**Genuvisco TPC-1** by **CP Kelco** is a thickener with a wide pH stability from 4.5 to 11. It is cold soluble and its formulations produce highly thixotropic gels. Oral, hair and skin care such as shaving foams or eye-make-up are typical applications.

**Genuvisco CG-131** by **CP Kelco** is an iota carrageenan and delivers elastic gels with a light skin feel. It is used for face masks, cosmetics, shampoos, dermocosmetics, SPA products and hair care. ▶



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Thickening water-based natural products is a challenge

**Gelcarin PC 379** by **Givaudan Active Beauty** is recommended as a hydrophilic polymer thickener and stabiliser for hair care and foams. **Gelcarin PC911** by **Givaudan Active Beauty** forms non-sticky emulsions with a pleasant skin feel.

**Glucmannans: Water-soluble polysaccharides**

**Konjac Mannan gel powder** by **GfN** is a very good moisturiser and has synergistic effects with other thickeners. It delivers a thermostable, non-sticky gel and is also stable in a low pH range.

**Propol A** by **Nagase** can be used in nearly all skin care preparations and in shower formulations. It delivers high viscosity and is pH stable in a wide range.

**Rheolex One-C** by **Nagase** is a glucomannan gelling agent. It provides a non-ionic, non-sticky gel. It is **Ecocert** and **Cosmos** certified and has China compliance.

**Using blends offers a number of benefits**

**Alchemy's Sucraclear HC-31** is a 100% natural stabiliser and suspending agent. It enables the preparation of clear, aqueous gels with excellent heat and temperature stability. It is also suitable

In **traditional cosmetics**, synthetic polymers or sulphate-based surfactants are used as thickeners

**THICKENERS** can have a **significant impact on** product stability, efficacy, suspending properties and skin feel.

More than **0.5% of water-based thickeners** can result in **poor skin feel**

for surfactant systems, and recommended for body gels, clear natural shampoos, hair gels and emulsions.

**Alchemy's Sucrathix VX** is a 100% natural, non-sticky white powder which is based on microcrystalline cellulose, cellulose gum and xanthan gum. It forms creamy, soft gels. The blend is recommended for creams, lotions, bodywash products, shampoos, sun care, colour cosmetics and wet wipes.

**Avical PC 815** by **FMC** is a blend of microcrystalline cellulose and algin.

The use of **Givaudan's Syner-GX** combines the touch and texture properties of xanthan and guar. It is made of cyamopsis tetragonoloba gum and xanthan gum.

**Lucas Meyer's Siligel** is a 100% natural, easy-to-use thickener blend. It is a very good gelling agent which provides a silicone-like skin feel. Its versatile properties make it suitable for numerous applications. It also acts as a suspending agent for glitters, pearlescent pigments, and beads.

**J. Rettenmaier & Söhne (JRS)** offers **Vivapur COS 5**, a blend of microcrystalline cellulose (86–92%) and cellulose gum (8–14%). It can be also used as a 3D-stabiliser. It is highly compatible with surfactants and electrolytes. Products based on this blend are easily spreadable and give a smooth silky-soft and matt effect. It is recommended for skin, sun, and hair

care products, colour cosmetics, toiletries, and antiperspirants.

**Vivapur CS 032 XV** by **JRS** is a powder compound of xanthan gum and microcrystalline cellulose. It can be used universally in personal and oral care.

**Seppic's Solagum AX** is an instant cold and hot water soluble, sustainable combination of acacia gum and xanthan gum. It prevents the stringy effect in aqueous gels.

**Fibres for personal care**

**Fiberstar's Imulsi-Fi A30** is derived from 100% plant material (orange pulp). It acts as a multi-functional emulsion stabiliser and thickener. The ingredient provides a smooth, creamy skin feel and is used in skin care products and after-shave lotions and creams. It offers good skin compatibility and is also non-allergenic.

**BergMuls ET1** by **Berg + Schmidt** is a natural emulsifier and thickener based on cereal and fruit fibres. It has very good emulsifying and thickening properties and is fully compatible with other ingredients. Another benefit is that it can be used in the whole pH range.

**Vitacel CS 052 WV** by **JRS** is a 3D fibre network for multiphase systems such as emulsions. It is based on fibrillated wheat fibre, is gluten-free, phytic acid-free and GMO-free. Its mildness makes it particularly suitable to achieve a smooth and non-tacky skin feel.

**Minerals as thickening agents**

**Amcold's Magnabrite HS** is a purified blend of white smectite clays. It can be used in conditioning 2-in-1 shampoos, creams and lotions, facial masks, pearlescent shampoos and hair straightener/permanent wave applications.

**Bentone-EW** is a hectorite by **Elementis**.

**JRS' Vanatural**, a highly purified blend of white smectite clays, is 100% natural and used as a suspension stabiliser, emulsion optimiser and rheology modifier. □



Only facial masks managed to drive growth in facial care

\*UL-Prospector 2018

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